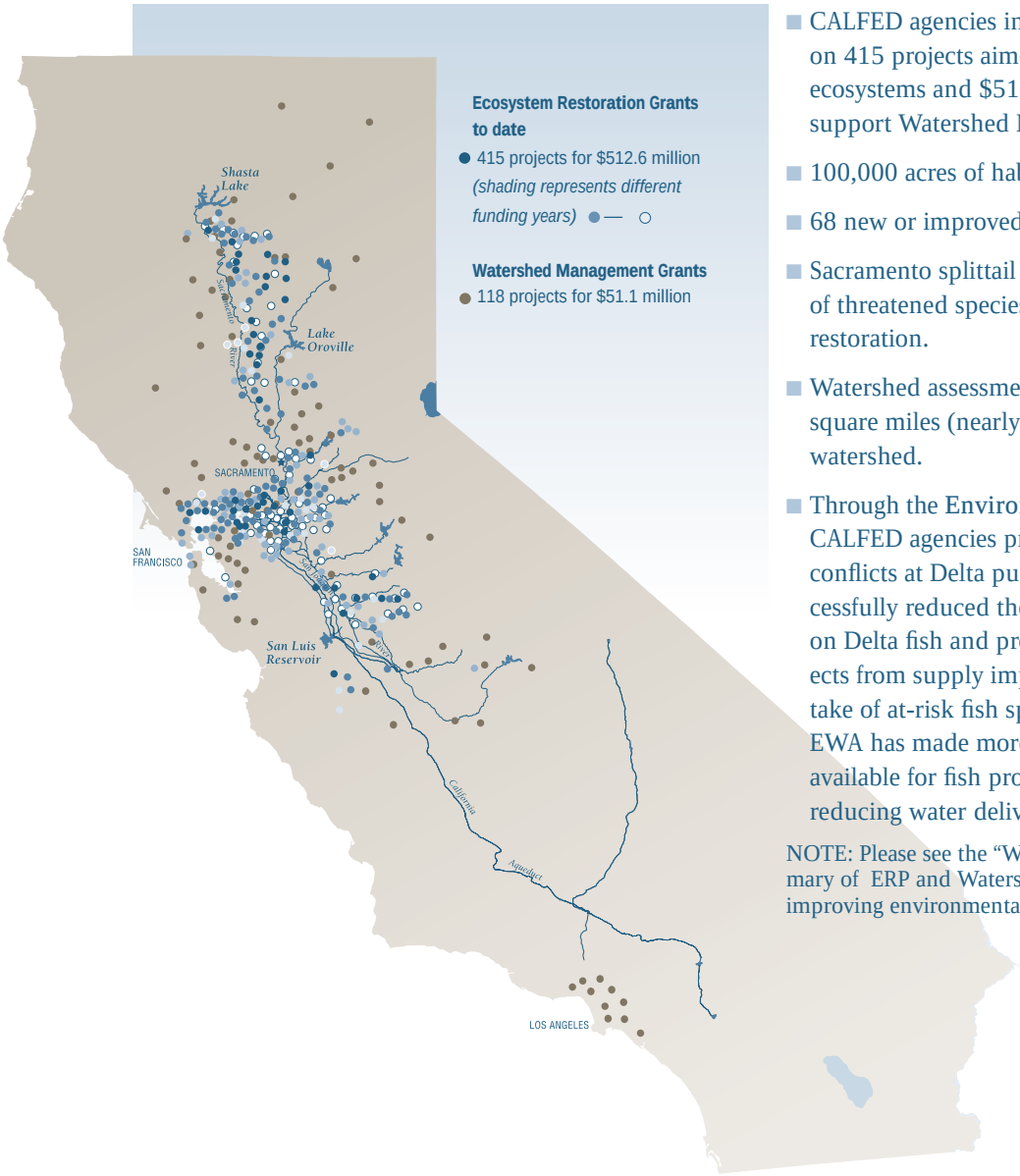
ECOSYSTEM RESTORATION & WATERSHED MANAGEMENT

The CALFED agencies are implementing the Ecosystem Restoration Program to improve the ecological health of the Bay-Delta watershed through restoring and protecting habitats, ecosystem functions and native species. The Watershed Program funds, coordinates and provides technical support for local watershed activities. Highlights of cumulative accomplishments of both programs in the first four years include:

Ecosystem and Watershed Projects



Summary of Accomplishments

- CALFED agencies invested more than $512 million on 415 projects aimed at improving and restoring ecosystems and $51.1 million in 118 projects to support Watershed Management goals.
- 100,000 acres of habitat protected or restored.
- 68 new or improved fish screens installed.
- Sacramento splittail removed from the federal list of threatened species due to progress on habitat restoration.
- Watershed assessments were developed on 4,652 square miles (nearly 3 million acres) of the Bay-Delta watershed.
- Through the Environmental Water Account (EWA), CALFED agencies protected fish and reduced conflicts at Delta pumping facilities. EWA has successfully reduced the direct effects of water exports on Delta fish and protected the state and federal projects from supply impacts due to excessive incidental take of at-risk fish species. In the past four years, the EWA has made more than 1 million acre-feet of water available for fish protection measures without reducing water deliveries to other uses.

NOTE: Please see the "Water Quality" section for the summary of ERP and Watershed Program efforts related to improving environmental water quality.

CALFED Plan
Record of Decision (ROD)

The CALFED Plan includes the following Ecosystem Restoration and Watershed Management goals:

- Restore habitat in the Delta and its tributary watersheds.
- Augment stream flow in upstream areas through voluntary water purchases of up to 100,000 acre-feet annually for native fish.
- Improve fish passage through modification or removal of dams, improved bypasses, screens and ladders.
- Integrate flood management and ecosystem restoration.
- Build local capacity to assess and effectively manage watersheds that affect the Bay-Delta system; develop watershed assessments and plans; implement specific watershed conservation, maintenance and restoration actions.
- Manage an Environmental Water Account to provide benefits to fish as well as water supply reliability to farms and cities.

Accomplishments of the Ecosystem Restoration & Watershed Program

- In 2004, the ERP Implementing Agencies completed a comprehensive assessment of the progress towards achieving the restoration-related milestones identified for the CALFED Program. This assessment found that progress on nearly 80 percent of the milestones was on or ahead of schedule. This progress was sufficient to allow regulatory agencies to continue coverage under the state and federal Endangered Species acts for the entire CALFED Program as well as commitments to continue state and federal Delta water exports without additional reductions to protect key fish species.
- The "Mercury Strategy for the Bay-Delta Ecosystem: A Unifying Framework for Science, Adaptive Management, and the Ecological Restoration," was completed and $30 million invested to build the scientific foundation for assessing and reducing mercury-related risks in the Bay-Delta ecosystem.
- A Request For Proposals was released in September 2004 to continue monitoring and evaluating ecosystem restoration actions, or groups of restoration actions, previously funded through the ERP.
- Approximately $25.5 million was invested in 35 new projects during the past year to community-based organizations for projects addressing watershed health, drinking water quality, non-point sources of pollution and watershed protection. Many of these grants also support ERP goals.
- A comprehensive review of the first 54 watershed projects funded since 2001 was completed showing that CALFED watershed projects are making significant contributions toward improved water quality, water supply reliability, and ecological health.

Cross-Regional Benefits

The Bay-Delta Program's regional approach emphasizes local involvement and strives to address local issues and needs. But many actions in specific regions directly benefit other regions and the state as a whole. These include:

- Improved habitat contributes to improving the overall health of the Bay-Delta estuary and key species, which in turn results in greater water supply reliability for water users in much of the state.
- Environmental Water Account activities provide water to protect native fisheries in the Delta and improve water supply reliability for cities and farms in the Bay Area, San Joaquin Valley and Southern California.
- Investments in water quality research help guide management actions to reduce the effects of contaminants.

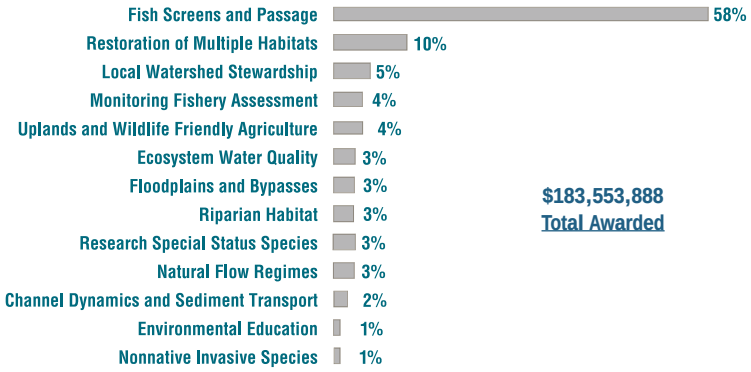
ECOSYSTEM RESTORATION & WATERSHED MANAGEMENT

More than $512 million has been awarded to date for more than 400 Ecosystem restoration projects. Ecosystem restoration efforts continue to improve habitat and address the needs of key species. Accomplishments include:

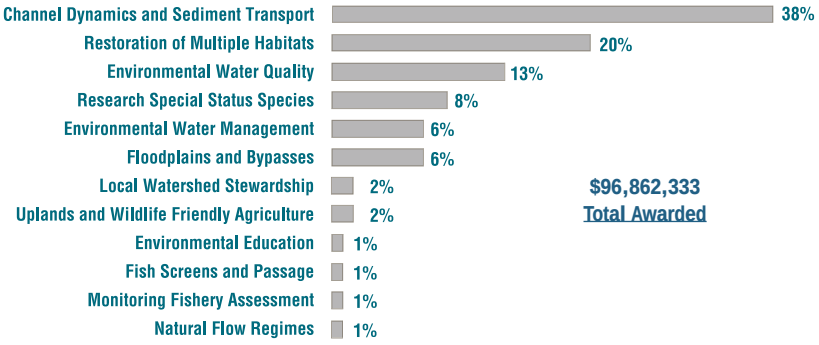
- Single blueprint approach adopted
- 100,000 acres of habitat protected or restored
- 68 new or improved fish screens constructed
- 23 comprehensive scientific studies undertaken
- Contribution made to meeting regulatory commitments for all Program elements

Regional Spending

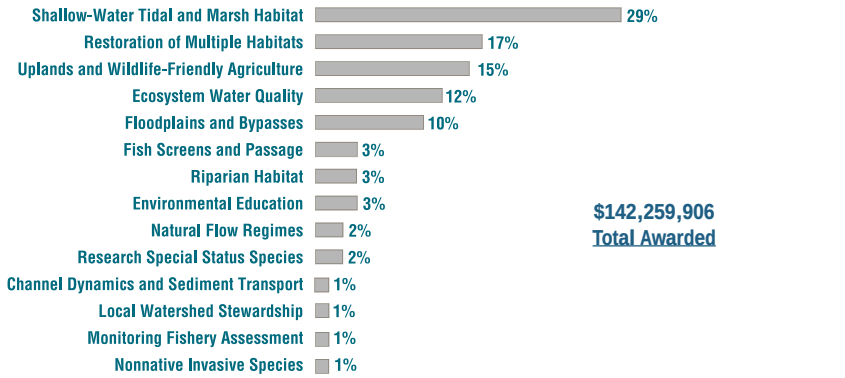
Percent of total spent on Sacramento River Region ERP Actions



Percent of total spent on San Joaquin River Region ERP Actions

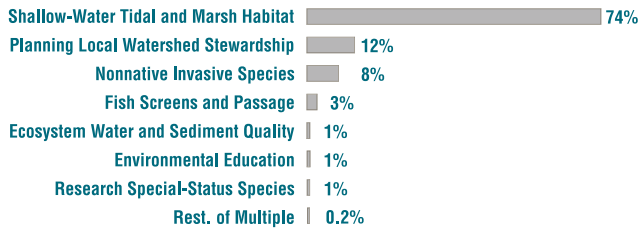


Percent of total spent on Delta and Eastside Tributaries Region ERP Actions

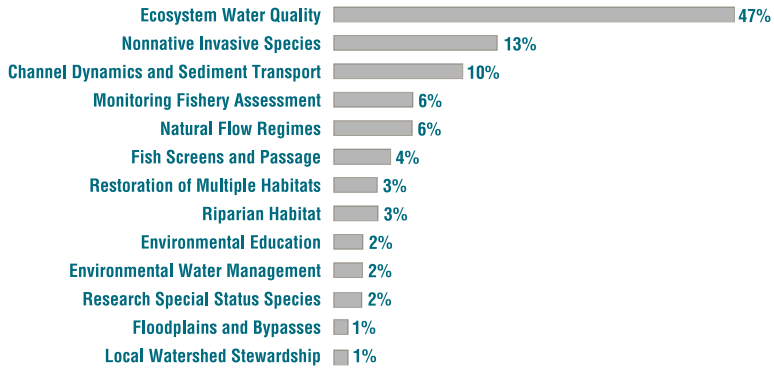


Regional Spending (cont.)

Percent of total spent on Bay Region ERP Actions

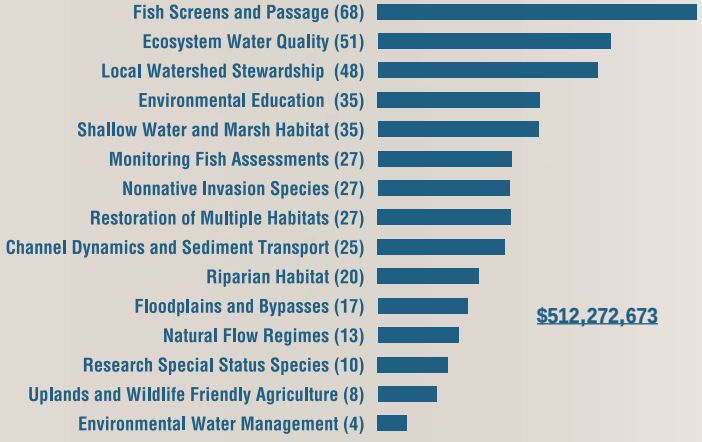


Percent of total spent on ERP Actions with cross-regional benefits

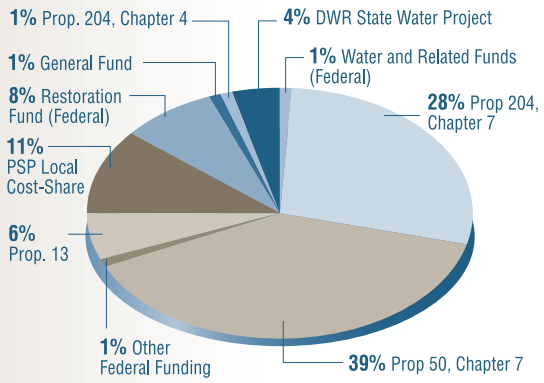


Total Spending

Types and number of restoration projects funded by the ERP



Fund sources and percentages of funding to support Ecosystem Restoration Program in 2004



$172,920,000

(Amount includes $7,268,000 from State Water Project for mitigation and $20,000,000 in local cost share which are not counted toward the $150 million commitment toward the Ecosystem Restoration Program.)

ECOSYSTEM RESTORATION & WATERSHED MANAGEMENT

PROJECT HIGHLIGHT

Assessing Progress toward Milestones

Improving the status of endangered or threatened plants, animals and their habitats is one of the central commitments of the CALFED Program. This commitment is embodied in the 2000 CALFED Programmatic Record of Decision (ROD) and attendant regulatory agreements regarding actions of the Ecosystem Restoration Program (ERP). To gauge progress toward the ERP's goal for recovery of at-risk species, the endangered species regulatory agencies identified 119 milestones in 2000 that were expected to be achieved by the end of the 7-year-long Stage 1.

In July 2004 the ERP Implementing Agencies completed a mid-Stage 1 assessment of progress toward achieving the 119 milestones listed in the ROD. The assessment considered 416 ERP contracts, 83 Watershed Program contracts, and 68 Central Valley Project Improvement Act contracts, and also contained an evaluation of the efficacy of the Environmental Water Account. On September 30, 2004, the regulatory agencies concluded that the CALFED Program is meeting its substantial commitment to reviving California's Bay-Delta ecosystem while improving the reliability of the state's water supplies. As a result of that conclusion, the CALFED agencies extended the EWA and the CALFED Program commitment to not reduce water deliveries from the Delta for three more years. Progress toward milestones indicates that the CALFED Program is investing in actions that are expected to help recover at-risk species.

Highlights from the assessment include:

- *Nearly 80 percent of the 119 milestones provided for in CALFED's Stage 1 are on or ahead of schedule.*
- *More than 11,000 acres of wildlife-friendly agriculture was protected in the Delta, meeting the Stage 1 target for the region.*
- *More than 50,000 acres of seasonal wetlands in the Sacramento River Region are being enhanced, protected or restored.*
- *About 500 acres of fresh emergent wetlands in the San Joaquin River Region are being enhanced, protected or restored.*
- *Most of the environmental water quality milestones are being addressed by the 51 projects funded by the ERP; approximately 40 percent of those projects affect multiple regions.*

Summary of Milestone Assessment for Quantified Target Categories for Stage 1

Target Category	Stage 1 Target	Accomp. to Date	Percent Complete
Bay Region			
Riparian Habitat Miles	15 miles	3 miles	20%
Perennial Aquatic Habitat	400 acres	400 acres	**Completed**
Vernal Pool Habitat	1,100 acres	1,350 acres	**Completed**
Fish Screen Consolidation or Screen	108 diversions	7 diversions	7%
Delta Region			
Wildlife Friendly Agriculture	6,000-11,250 acres	11,891 acres	**Completed**
Delta Slough	15 miles	1 mile	>1%
Fresh Emergent Wetlands (non tidal)			
North Delta	500 acres	142 acres	28%
East Delta	250 acres	0	–
South Delta	1,000 acres	0	–
Central and West Delta	2,500 acres	224 acres	9%
Tidal Emergent Wetlands			
North Delta	500 acres	4,760 acres	**Completed**
East Delta	500 acres	32 acres	6%
South Delta	4,000 acres	0 acres	–
Central and West Delta	5,000 acres	259 acres	5%
Inland Dune Scrub	50 acres	0	–
Midchannel Islands and Shoals			
Channel Islands	125 acres	5 acres	>1%
Shoals	125 acres	0 acres	–
Riparian Habitat			
Miles	50-95 miles	83 miles	87%
Acres	300 acres	5,227 acres	**Completed**
Seasonal Wetlands	1,000-1,500 acres	1,350 acres	90%
Tidal Perennial Aquatic			
North Delta	500 acres	0 acres	–
East Delta	250 acres	0 acres	–
South Delta	500 acres	0 acres	–
Central and West Delta	750 acres	426 acres	57%
Fish Screens	50 diversions	29 diversions	58%
Sacramento River Region			
Wildlife Friendly Agriculture	298,646 acres	298,643 acres	**Completed**
Riparian Habitat Miles	40 miles	17 miles	85%
Seasonal Wetlands	4,325 acres	50,868 acres	**Completed**
Fish Screens			
>250 cfs	38 diversions	21 diversions	55%
<250 cfs	226 diversions	85 diversions	38%
San Joaquin River Region			
Wildlife Friendly Agriculture	2,293-3,822 acres	0 acres	–
Fresh Emergent Wetlands (nontidal)	100 acres	500 acres	**Completed**
Perennial Grasslands	1,000 acres	0 acres	—
Riparian Habitat			
Miles	12 miles	5 miles	42%
Acres	303 acres	6,569 acres	**Completed**
Fish Screens			
>250 cfs	2 diversions	1 diversion	–
<250 cfs	118 diversions	0 diversions	50%

Ecosystem Restoration Program: Integrating agricultural activities with ecosystem restoration

These are the four main areas of ERP investment for integrating agricultural activities with ecosystem restoration:

Conservation Incentives: *Providing incentives and technical assistance (including research and monitoring) to landowners to voluntarily implement conservation-based farm management*

Conservation Easements: *Working with willing sellers, easements allow conservation of important agricultural land and ecosystem benefits while maintaining private ownership of land.*

Fish Friendly Irrigation Systems: *Contributing toward improved fish passage that facilitates continued irrigation of agricultural land.*

Planning: *Developing plans that support actions landowners can voluntarily undertake to improve environmental quality in their watershed.*

PROJECT HIGHLIGHT

Working Lands and the Ecosystem Restoration Program

Most Central Valley land is private farmland. The CALFED Program has worked since its inception to address the concerns of agricultural landowners while meeting its commitments to managing the Bay-Delta water supply and restoring key ecosystems. One hallmark of this effort is to encourage farming practices that maintain agricultural land while benefiting fish, wildlife, and clean water.

In Year 4 of Stage 1, CALFED agencies continued to improve wildlife and fish habitat on farms and advance the applied knowledge through which agricultural landowners can address ecosystem restoration goals.

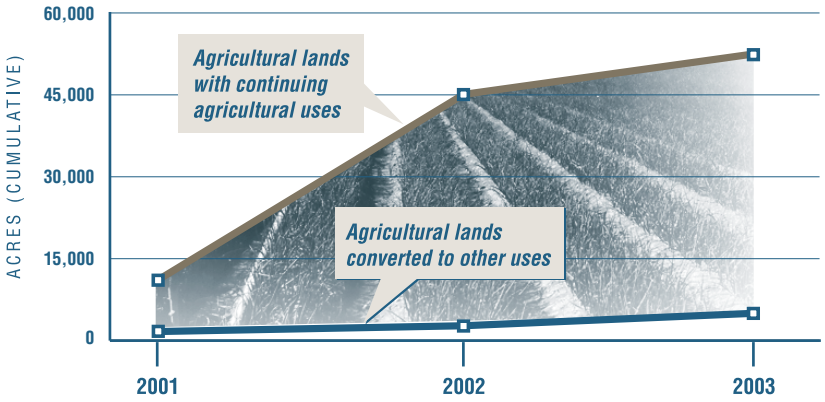
Since the ROD was issued in 2000:

- *The ERP has underwritten the protection of more than 54,000 acres of agricultural land, largely through easements. Post-ROD restoration projects have converted fewer than 3,500 agricultural acres to other uses. (See figure below)*
- *The ERP has provided technical assistance to ranchers, wine grape growers, rice producers and other farmers through multiple projects. These projects provide farmers with the tools to implement voluntary innovative on-farm practices to enhance habitat while providing opportunities to improve land productivity and profitability.*
- *The ERP has invested more than $114 million to screen agricultural diversions to allow for fish passage and to help keep fish out of irrigation water diversions.*

Stakeholder Involvement

The Working Landscapes Subcommittee provides a valuable forum for stakeholders to discuss important issues, share information, and formulate recommendations for the Bay-Delta Public Advisory Committee. In the two years since its formation, the subcommittee has taken on challenging topics in its diverse forum. It has provided recommendations on the use of ERP funds to integrate agricultural activities with ecosystem restoration, suggestions to address the impacts of CALFED projects on local tax revenues, and recommendations on the need for better social science and economic analysis in CALFED's Science Program. The diverse views of the subcommittee's participants – from environmentalists to commodity groups – provide a rich forum for discussion as well as opportunities for integrated recommendations. Better communication among stakeholders and CALFED agencies – a core CALFED operating principle – is an important by-product of the subcommittee's activities.

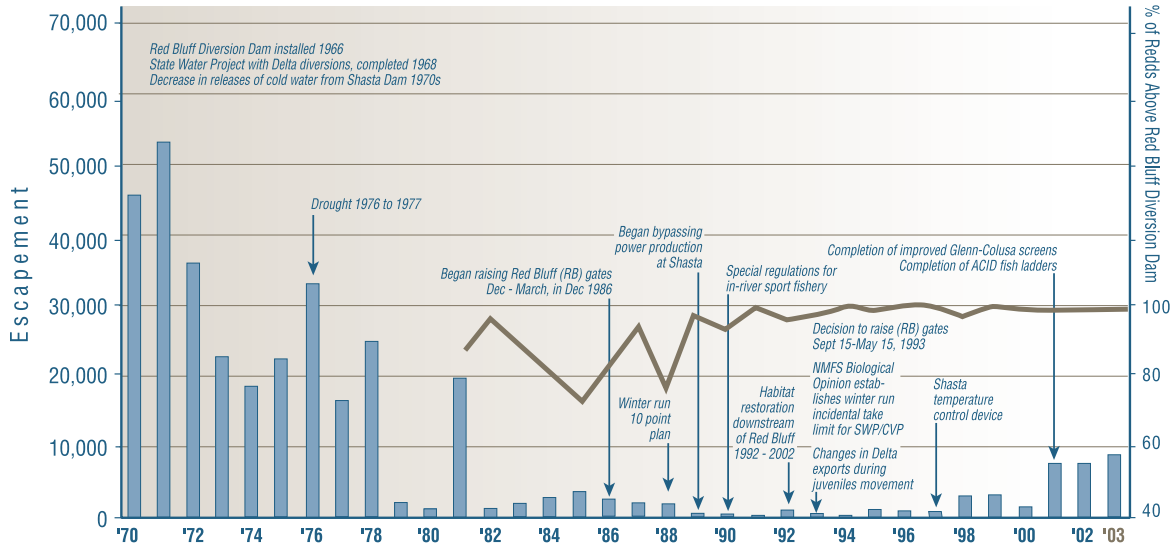
ERP Acquisition Trends



ECOSYSTEM RESTORATION & WATERSHED MANAGEMENT

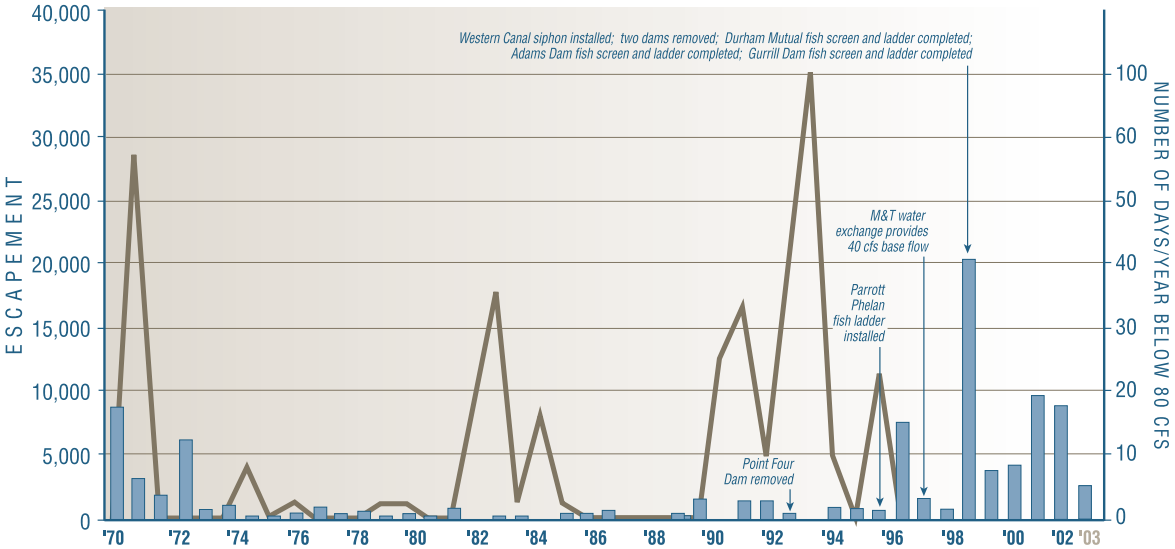
Ecosystem Restoration Performance Measures

Sacramento River Winter Run Chinook Salmon



This performance measure reports the escapement (the number of adult salmon escaping mortality and successfully returning each year to spawn) of adult winter-run Chinook salmon, an endangered species under the state and federal Endangered Species acts, on the Sacramento River. The Sacramento River population is the only remaining population of winter-run Chinook salmon.

Spring Run Chinook Salmon on Butte Creek

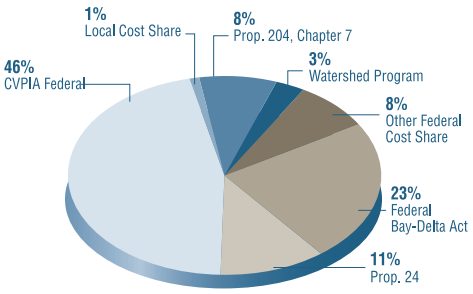


This performance measure reports the escapement (the number of adult salmon escaping mortality and successfully returning each year to spawn) of adult spring-run Chinook salmon, a threatened species under the state and federal Endangered Species acts, on Butte Creek. The Butte Creek population is one of the few remaining self-sustaining populations of spring-run Chinook salmon in the Central Valley. The spring-run in Butte Creek has been affected by significant impediments to upstream passage of adults stemming from dams, inoperative fish ladders, and reduced flows as a result of water diversions. Since 1995, restoration actions have included dam removal, installation and/or repair of fish ladders and fish screens, and improvements to base flow.

PROJECT HIGHLIGHT

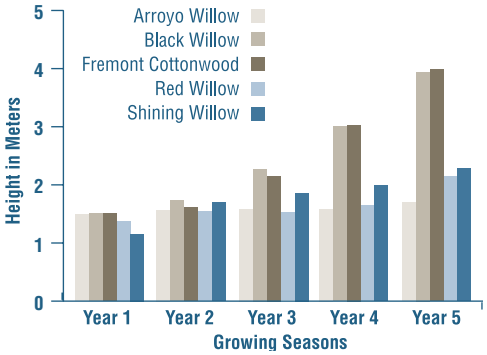
Clear Creek Accomplishments

Fund sources and percentage of funding for Clear Creek Restoration actions



$21 Million

Riparian Plant Growth in Restored Floodplains

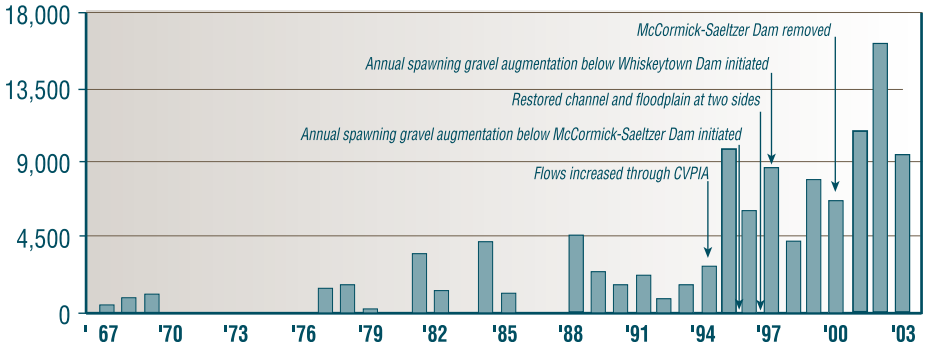


Clear Creek in Shasta County provides an example of the benefits of ecosystem restoration investment. Stressors that adversely impact fish and wildlife and their habitats in the watershed include dam construction, water diversion, mining and clear-cutting. Substantial, focused investments in the Clear Creek watershed by its many partners have shown notable progress toward milestones and targets, and positive responses by target species and their habitats. Since 1995, 13 agencies provided more that $21 million for 80 projects in the watershed ranging from stream channel restoration to fire prevention (see chart at upper left).

Many of the ERP milestones and targets have been reached for Clear Creek. Of the nine milestones that specifically identify Clear Creek, all nine are complete or on schedule. Of the 10 targets related to Clear Creek for Stage 1, nine are complete or in progress. Examples of progress toward milestones and targets include removal of McCormick-Saeltzer Dam in 2000, opening access to 12 miles of Clear Creek for salmon and steelhead. Stream temperature targets for spring-run Chinook and steelhead have been achieved. Three miles of the eight-mile target for restoring riparian habitat have been achieved, providing valuable habitat for songbirds and other species. Most flow targets for Clear Creek have been achieved through CVPIA actions. The Environmental Water Program is working to secure additional instream flows to reinvigorate natural stream channel and riparian processes on Clear Creek, complementing other habitat restoration actions.

While milestones and targets were achieved, the average number of fall-run Chinook salmon returning to Clear Creek increased more than 400 percent over the 1967 to 1991 baseline (see graph below). There has also been a noticeable increase in habitat use by riparian song birds with successful riparian plant and growth in restored floodplains (see graph at left). In 2004, restored sites showed a 40 percent increase in nest success from key songbirds, and the California endangered western yellow-billed cuckoo was sighted for the first time ever on Clear Creek and in Shasta County. Restoration efforts aimed at creating large tracts of riparian forest that this species is dependent upon may provide breeding habitat for this endangered species. Additional restoration and monitoring are expected to reveal continued positive trends for target species and habitats.

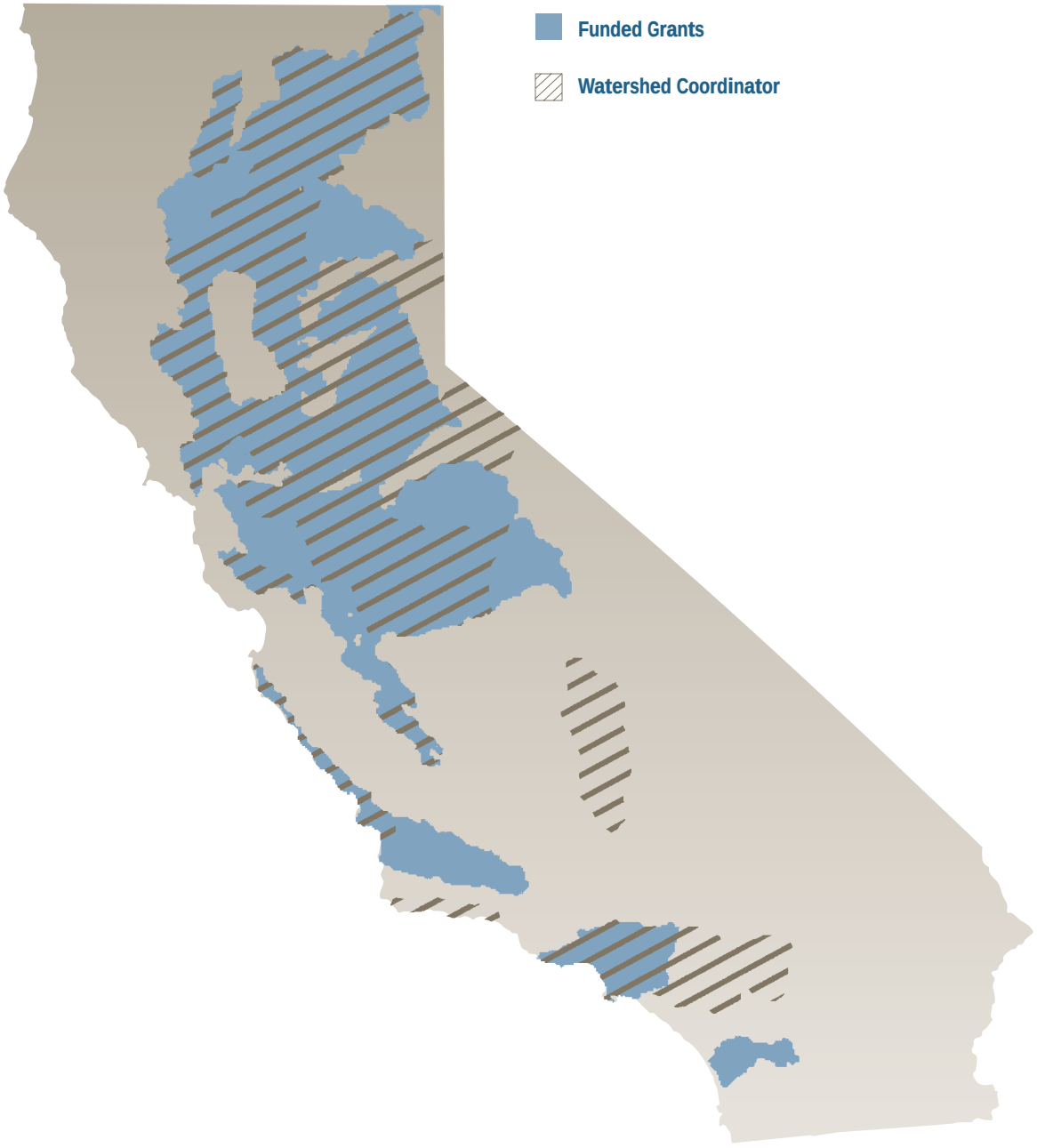
Fall-Run Chinook Salmon on Clear Creek



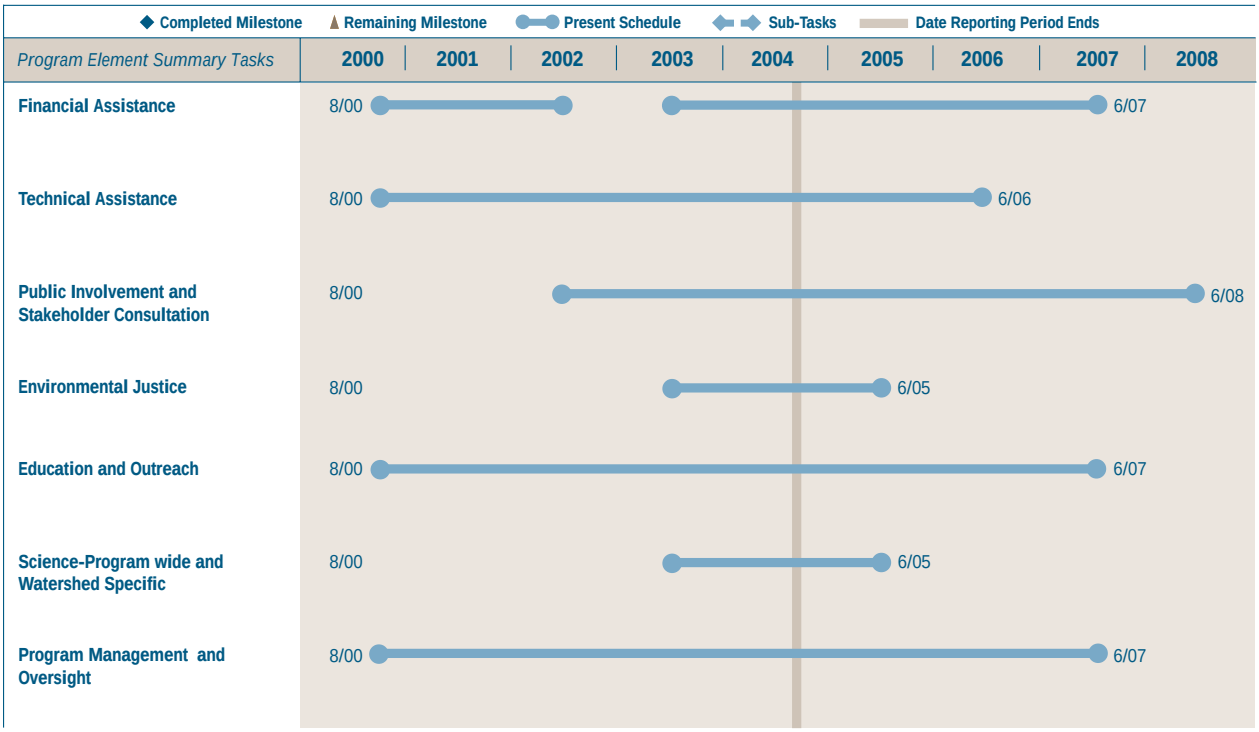
This performance measure reports the number of adult fall-run Chinook salmon successfully returning each year to spawn on Clear Creek. The habitat to support the fall-run on Clear Creek had been adversely impacted by dam construction, water diversion, mining and clear-cutting. Since 1995, restoration actions have included increasing stream flows, augmenting spawning gravel, restoring channel and floodplains, and removing the McCormick-Saeltzer Dam.

ECOSYSTEM RESTORATION & WATERSHED MANAGEMENT

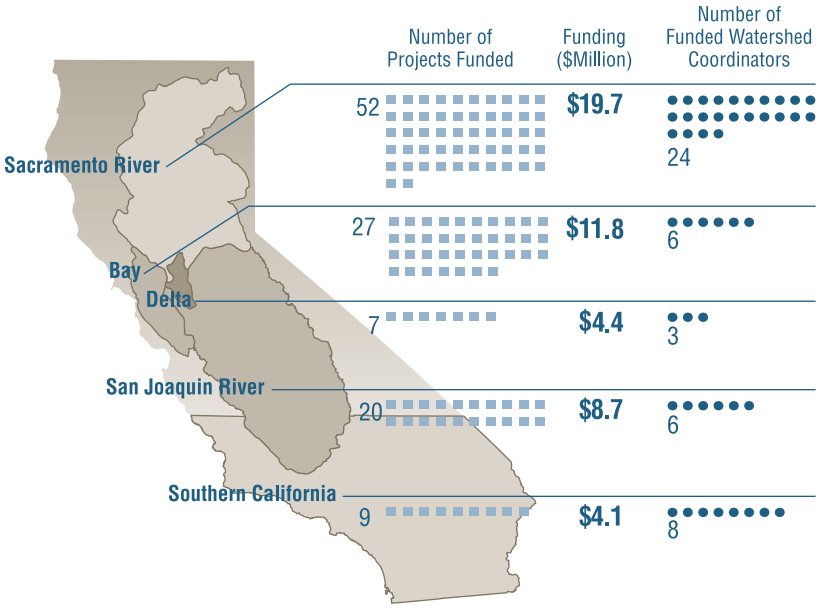
Watersheds with Funded Grant Projects & Contributions



WATERSHEDS



Watershed Accomplishments



NOTE: In addition to these projects, there are three statewide projects totaling $3.4 million